Remarks

Reconsideration and allowance of this application, as amended, are respectfully requested.

The written description portion of the specification, the abstract of the disclosure, and claims 1-7 have been amended. Claims 8-25 have been added. Claims 1-25 are now pending in the application. Claims 1, 17, and 23 are independent. The objections and rejections are respectfully submitted to be obviated in view of the amendments and remarks presented herein. No new matter has been introduced through the foregoing amendments.

The specification has been editorially amended for conformance with 37 CFR § 1.77(c), for consistency, and to correct any informalities. The abstract has been editorially amended for conformance with 37 CFR § 1.72(b). The claims have been amended in response to the rejection under 35 U.S.C. § 112, second paragraph, and still further to more fully comply with U.S. practice. New claims 8-25 have been added to further define the scope of protection sought for Applicant's invention.

Entry of each of the amendments is respectfully requested.

35 U.S.C. § 102(b) - Heller

Claims 1-7 stand rejected under 35 U.S.C. § 102(b) as being anticipated by US 2003/0084805 A1 of Heller et al. (hereinafter "Heller").

The rejection under § 102(b) based on Heller is respectfully traversed. For at least the following reasons, the disclosure of Heller does not anticipate Applicant's claimed invention.

By way of background, in conventional devices for supplying ink to an inking unit and for removing the ink therefrom, two separate pumps have typically been used. A feed pump suctions the ink from an ink supply tank and feeds it to the trough of a squeegee device. A return pump suctions ink from the squeegee device and feeds it back to the ink tank. An advantage of using two pumps is that the feed rate of each pump can be independently adjusted. The ability to independently adjust feed rates can be beneficial when the pumps may encounter different flow rates. However, a drawback associated with using two separate pumps is that the pumps, motors, and associated piping and controls are relatively expensive.

One solution that eliminates certain of the costs associated with the aforementioned two separate pumps is the use of a double diaphragm pump. While use of a double diaphragm pump may be more economical in certain respects, the flow rate of the feed chamber and the flow rate of the return chamber are not independently adjustable. That is, with a double diaphragm pump the ratio of the two chamber flow rates is fixed. For example, the flow rates may be equal to one another. This can be problematic, however, because during a printing process that uses a squeegee

device (which together with an anilox roller constitute a closed system), the anilox roller brings air into the squeegee device. The air flow rate must be accommodated by the return chamber since the air cannot be discharged through another path. The consequence is that the volume of the ink-air-mixture that must be educed is greater than the volume of the ink that is fed to the squeegee device. This means that simply replacing two separate pumps by one double diaphragm pump is impossible when a closed squeegee device is used. For example, if the feed chamber has the same flow rate or a higher flow rate as compared to the return chamber, the feed chamber supplies more ink than the squeegee device can accept.

Therefore, an object of Applicant's claimed invention is to provide a device that can accommodate the increased return flow rate from a closed squeegee device even when a single pump having a fixed ratio of feed and return flow rates is employed. According to one feature of Applicant's invention (claim 1), a bypass branches off from the feed line between the discharge side of the feed chamber and the squeegee device, and terminates in the ink tank. By virtue of this bypass, the portion of the ink feed that cannot be accommodated by the squeegee device can be returned directly to the ink chamber.

Heller's device is structurally and functionally different from Applicant's claimed invention. According to Heller, the bypass 47 departs from the feed line 27 at the discharge side of the feed chamber 19 and connects to the return line 41 on the

suction side of the return chamber 21. When Heller's bypass configuration is used in a printing machine equipped with a squeegee device, the volume that must be pumped by the return chamber is even greater than simply the increased return flow rate from the squeegee device. That is, the return chamber must accommodate not only the increased return flow rate from the squeegee device, but the bypass flow rate as well. Consequently, the flow rate of the return chamber must be much higher than that of the feed chamber. This is contradictory to Applicant's object of using a pump in which the flow rate of the feed chamber is equal to, or greater than, the flow rate of the return chamber (see specification page 5, lines 2-4; Figure 1).

Furthermore, the teaching of Heller does not address the above-described issue that Applicant addresses, i.e., the fixed ratio of feed and return flow rates. That is because Heller's teaching is directed to another operating issue, i.e., the removal of ink from the system for cleaning purposes. Rather than balancing flow rates, Heller's bypass 47 is used only during down time simply to remove ink from the feed line 27 between the discharge side of the feed chamber 19 and the trough 11 (see Heller Figure 2). As disclosed by Heller (page 5, paragraph [0065]):

> For the purpose of preferably completely emptying at least the feed line 27, the circulating line system 5 is provided with a bypass 47, by which a medium connection can be produced between the feed line 27 and the suction side of the return pump 21. *Because the bypass 47 is not used when the metering system 3 is being supplied with the coating medium*, the bypass 47 can preferably be shut

> off completely and can be opened as required, the performance of which, in an exemplary embodiment of the circulating line system 5 illustrated in FIGS. 1 to 4, is advantageously carried out by the first valve device 31. (Emphasis added)

Accordingly, in order to empty the feed line, Heller's bypass is connected to *the suction side of the return chamber*. That is not Applicant's claimed invention.

Another feature of Applicant's invention (claim 1) addresses the situation in which the flow rate of the return chamber is much higher than the flow rate of the feed chamber. In this case, which requires returning a portion of the removed ink back to the squeegee device, the bypass connects the discharge side of the return chamber with the feed line at a location between the discharge side of the feed chamber and the squeegee device. Heller does not teach this feature of Applicant's claimed invention. Again, Heller simply teaches a bypass that connects the discharge side of the feed line with the suction side of the return chamber in order to drain the feed line.

Since Heller does not meet each feature of the claimed invention, Heller does not anticipate the invention defined by Applicant's claims 1-7.

New claims 8-25 have been added to further define the scope of protection sought for Applicant's invention. New claims 8-25 are also allowable. Since independent claims 17 and 23 include at least the features discussed above with respect to the

rejection over Heller, the reference neither anticipates nor would have rendered obvious the process or device defined by any of new claims 8-25.

In view of the foregoing, this application is now in condition for allowance. If the examiner believes that an interview might expedite prosecution, the examiner is invited to contact the undersigned.

Respectfully submitted,

JACOBSON HOLMAN PLLC

By: Harvey B. Jacobson, Jr.
Harvey B. Jacobson, Jr.
Reg. No. 20,851

400 Seventh Street, N. W.
Washington, D.C. 20004
Telephone: (202) 638-6666
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